

1 **ABSTRACT OF THE DISCLOSURE**

2 The present invention includes phase shifters, interrogators,
3 methods of shifting a phase angle of a signal, and methods of operating
4 an interrogator. One aspect of the present invention provides a phase
5 shifter including a first power divider configured to receive a signal and
6 provide plural quadrature components of the signal; plural mixers
7 coupled with the first power divider and configured to scale the
8 quadrature components using a phase shift angle; and a second power
9 divider coupled with the mixers and configured to combine the scaled
10 quadrature components to shift the phase angle of the input signal by
11 the phase shift angle.